



# Black Boxes, Big Help Or Big Brother? - Part 1

## Automation & Privacy Clash As Government Seeks Access To On-Board Data

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Imagine for a moment that on your next drive, you were required to have a traffic cop sitting beside you in the passenger seat, and worse yet, that you had to personally pay his salary. Or, think about having an IRS agent on your payroll who has unrestricted access to all of your financial records. Given that these examples are directly contrary to the basic principles on which this country was founded, you can begin to understand the trucking industry's growing opposition to government use of on-board data for audit and enforcement purposes.

At the center of the controversy are what have become commonly known as "Black Boxes," on-board data recorders capable of capturing many forms of operational data through a truck's electronic network. The debate involves how much data is actually captured, how long it is kept, who has access to the data, and under what circumstances. Politics, outdated regulations, and misconceptions about the technology involved, are all helping to fuel the debate.

To make any sense out of the situation, one must first separate the issues involved. In Part 1 of our coverage, we'll try to clear up some of the misconceptions about the technology and look at the government's "theory" on the topic as expressed by the Chairman of the NTSB. Next time, we'll look at some real-world applications of the technology and hear from those fleets currently using it.

A "Black Box," in the most accurate sense of the description, is an incident data recorder capable of storing operational data for a limited segment of time. In the event of an accident, the black box can provide data from several vehicle systems for the period leading up to the accident. Because the data storage capacity (tape or solid-state memory) is limited, the oldest data is overwritten as new data is recorded. Eaton's VORAD system contains a black box feature that can "lock-in" the most recent 10 minutes worth of data, and the data recorders on commercial airliners can store at least 25 hours worth of data. The key detail here is that unless an accident has occurred, old data is not retrieved, but overwritten.

Even though accidents involving commercial trucks are rarely as difficult to reconstruct as even the most simple airline crash, factors including conflicting witness statements and an undeniable anti-truck bias on the part of most enforcement and investigation personnel, having factual data for the period leading up to an accident would help the trucking industry more often than it would hurt. For

this reason, several people involved in the trucking industry, Freightliner CEO Jim Hebe and this writer included, believe that this form of on-board data logging, limited solely to use for accident reconstruction, would be good for the industry.

Government officials would also like to see data recorders in trucks, but the motives inside the Washington, D.C. Beltway are considerably less altruistic. In a recent speech before the Transportation Research Board, Jim Hall, chairman of the National Transportation Safety Board (NTSB) began by extolling the benefits of the data recording systems used in the commercial airline industry. To support his position, Hall quoted statistics showing that the airline's fatal accident "rate," in terms of fatal accidents per hundred million aircraft miles flown, has dropped since 1960. It is important to note that here, Hall focused on the accident rate, rather than an actual fatality count, especially in light of several recent airline crashes.

Having only mentioned data recorders in the context of accident reconstruction thus far, Hall refers to applying this technology to highway transportation, stating, "It's hard to believe that we're not already using every available technology to solve our nation's number one safety problem." Hall continues by citing various highway fatality count figures, rather than sticking with the fatalities per vehicle mile figure that was so important a few minutes earlier. Hall's remarks then attempt to steer this problem toward the heavy truck industry, even though his own figures indicate that heavy trucks have absolutely no participation in more than 80% of highway fatalities. Directly contrary to his discussion of airline fatality statistics, Hall states, "And although many tout that the accident rate, (highway) accidents per million vehicle miles, has declined since 1991, in actuality, the number of fatalities continues to increase."

Beginning his segue away from selling data recorders as accident reconstruction aids and moving into selling the technology as an enforcement tool, Hall discusses "measures that would help prevent the carnage we're seeing on our highways - even something as simple as supplying truckers with sufficient rest areas to keep fatigued drivers off the road," implying that drowsy truck drivers have a significant effect on the "carnage." Although the industry might appreciate the vote for expanding the nation's woefully inadequate supply of rest stops, it's widely accepted that the outdated Hours of Service (HOS) regulations, which run contrary to the laws of nature, hold more responsibility for truck driver fatigue.

If Hall were truly interested in "simple measures to reduce carnage," perhaps he should refer to the University of Michigan Transportation Research Institute (UMTRI) study of truck-involved fatal accident statistics during 1994-1995. Amongst other figures, the study lists the single leading cause of (truck-involved) highway fatalities as head-on collisions where the passenger vehicle came into the truck's lane, accounting for nearly 23% of the 5,453 fatal passenger vehicle-commercial truck accidents during the study period.

Leaving aside factors of causation such as drowsy and/or inattentive passenger car drivers, one would gather from these and other statistics in the study that the "simple measure" of installing more barrier walls between oncoming lanes of traffic would be the obvious first step to reducing the single biggest cause of truck-involved fatal accidents. Unfortunately, installing barrier walls is a low-tech and behind the scenes concept that doesn't generate much political collateral.

Taking off the "sheep's clothing," Hall then reveals the true purpose of his speech, referring to a 1990 NTSB study covering truck-involved fatal accidents. "We concluded that these devices (data recorders) could provide a tamper-proof mechanism that could be used to enforce the hours-of-service regulations, rather than relying on drivers' handwritten logs."

Hall then incorrectly equates this sort of enforcement, with existing statistical technology for managing fleet operations and vehicle maintenance, as well as with the incident-based accident data recorders. There is a vast difference between those concepts. Neither the airline industry nor the railroad industry have adopted any data recording technology beyond the accident data recorders, in spite of a much higher potential for loss of life in these industries.